

Field Report

Canaveral National Seashore

■ 1.0 Summary

The Canaveral National Seashore (NS) covers approximately 57,000 acres of land along the Atlantic Ocean between New Smyrna Beach and Titusville, Florida. The mission of the seashore as defined in its enabling legislation in 1975 is to “preserve and protect the outstanding natural, scenic, scientific, ecological, and historic values of certain lands, shoreline, and waters of the state of Florida, and to provide for public outdoor recreation use and enjoyment of the same.” Canaveral NS neighbors include the Merritt Island National Wildlife Refuge (NWR) and NASA Kennedy Space Center (KSC). Approximately two-thirds of the seashore property, or 40,000 acres, is owned by the National Aeronautic and Space Administration (NASA). NASA retains principal authority over its lands within the seashore in order to ensure its capability to perform its mission.

There are three beach areas along the seashore. Apollo Beach is located in the North District, Playalinda Beach is located in the South District, and Klondike Beach is located between the other beaches.

Bicycle Rack at Canaveral National Seashore

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A feasible Alternative Transportation System (ATS) identified is a ferry service that operates across the Mosquito Lagoon between Seminole Rest and the North District. An interpretive guide would provide information about the lagoon and the features of the Park during the trip would operate the ferry.

■ 2.0 Background Information

2.1 Location

Canaveral NS is located on the shores of the Atlantic Ocean on the east coast of Florida midway between Daytona Beach and Melbourne, Florida. The seashore is divided into the North District and South District, with no direct vehicular access between the two areas. The North District is accessed by U.S. Route A1A from New Smyrna Beach. The South District is accessed by State Road 406/402 from Titusville. The Canaveral NS Visitor

Information Center is located seven miles south of New Smyrna Beach on U.S. A1A. The Canaveral NS headquarters are located in Titusville.

The seashore is located to the north of the Kennedy Space Center and Cape Canaveral Air Force Station. The Merritt Island NWR is located to the west of the seashore's South District.

Figure 1. Map of Canaveral National Seashore and Adjacent Federal Lands



2.2 Administration and Classification

Canaveral NS was authorized by Congress in January 1975. Approximately two-thirds of the seashore property, or 40,000 acres, is owned by NASA. NASA bought this property in the 1950s and set it aside as a buffer to provide security for the space program. Administrative control of this “joint area” was given to the USFWS. Through cooperative agreement, the adjacent Merritt Island NWR manages natural resources and general operations in the joint area, while the NPS is responsible for interpretation, research, and protection of archaeological and historic sites. The North District of the seashore was transferred from the state of Florida to the U.S. government as part of the seashore, with the exception of the water column.

The seashore has 22 full-time employees. In addition, the seashore enjoys an active volunteer program. In 1998, volunteers provided over 9,000 hours of service to the seashore.

2.3 Physical Description

Canaveral NS is comprised of approximately 57,000 acres of barrier island, lagoon, coastal hammocks, pine flatwoods, and offshore waters. The resources range from wilderness islands and a unique undeveloped stretch of beach, to readily accessible recreational beaches and historic sites. The natural environment of Canaveral supports a number of complex terrestrial and aquatic communities that characterize the eastern Florida coast and fully illustrates the natural processes which shape these unique areas.

The seashore has undeveloped beaches and limited services. The seashore includes 24 miles of natural Florida beach, with the longest stretch of undeveloped dune along the east coast of Florida. Canaveral is the only location on the Atlantic coast where a person can face north and see the coast of Florida, as it was hundreds of years ago. There are three beach areas along the seashore. Apollo Beach is located in the North District, Playalinda Beach is located in the South District, and Klondike Beach is located between the other beaches. There is no vehicular access to Klondike Beach. Lifeguards are on duty from May 30 to September 1 each year near Parking Area Number 1 for Apollo Beach and near Parking Area Number 8 for Playalinda Beach.

2.4 Mission and Goals of the Park

Canaveral NS was established “to preserve and protect the outstanding natural, scenic, scientific, ecological, and historic values of certain lands, shoreline, and waters of the state of Florida, and to provide for public outdoor recreation use and enjoyment of the same.”

In order to ensure its capability to perform its mission, NASA retains principal authority over its lands within the seashore. Canaveral NS has developed objectives to guide its resource management. These objectives include:

- Manage the seashore to enhance natural processes and mitigate human impact;
- Manage all lands in a consistent manner to achieve the Park’s purpose;
- Identify, inventory, and monitor the condition of the Park’s resources;
- Coordinate management of the seashore with NASA, USFWS, and the neighboring communities;
- Consider a full range of alternative means of transportation to access and circulate within the Park;
- Communicate concepts and values to visitors that will motivate protection of the seashore’s resources;
- Use minimum and environmentally safe measures for mosquito control;
- Provide services for a variety of visitor activities;

- Manage the surrounding marine areas and submerged lands;
- Provide service facilities in areas with low resource value, and utilize appropriate architectural style and utilities;
- Cooperate with the private sector to provide needed services in the area; and
- Operate the seashore primarily as a beach- and water-oriented day-use area.

2.5 Visitation Levels and Visitor Profile

Canaveral National Seashore received 455,475 visitors during fiscal year 1998. Visitors to the Park may enjoy a number of different activities including swimming, hiking, boating, and bicycling. In addition, there are a number of cultural resources located at the seashore including the Eldora State House, Rose Hammock Midden, and Turtle Mound. Visitation in 1999 is down by 20 percent to date, possibly due to reduced regional tourism. The Park stays busy most of the year, with September and October being the low visitation season.

A survey was conducted during that year that determined 93 percent of the visitors were satisfied with the quality of the facilities, services, and recreational experience at the seashore. The Park has a small, temporary visitor contact station in the North District to serve all Park visitors. As many of the visitors are from the local area and are familiar with the Park, the proportion of visitors that stop at the Visitor Center is small. Park management is therefore not provided the opportunity to educate the public on resource management. In response to this challenge, Canaveral NS has instituted a very active public use program. The current level of visitation has overextended the Park's resources and has prompted the Park to increase resource management interpretive programs to help prevent further resource damage. At least one special event was scheduled for every weekend in October 1999, including special interpretive programs, driving tours, surf fishing lessons, and sea turtle programs.

Canaveral National Seashore Visitors Center (North District)



In the North District, most of the visitors during the peak season are local residents who are spending the winter in the New Smyrna Beach area. A number of visitors who are unfamiliar with the area drive into the North District in search of the Kennedy Space Center. Apollo Beach is the primary beach in the North District.

In the South District, 80 percent of the visitors are regional, primarily from surrounding counties. Titusville is a unique Florida east coast community, as it has no associated beach. Titusville has informally “adopted” the Playalinda Beach in the southern district as its community beach. The Playalinda Beach is closed to the public for three days prior to a launch at the Kennedy Space Center for security and safety.

Klondike Beach is located between Playalinda Beach and Apollo Beach. Visitors to Klondike Beach must park at either the south end of the North District or the north end of the South District and walk to Klondike Beach, as there is no vehicular access to this beach.

■ 3.0 Existing Conditions, Issues and Concerns

3.1 Transportation Conditions, Issues and Concerns

U.S. A1A provides direct access to the Visitor Information Center and Apollo Beach in the North District and State Road 402 provides direct access to Playalinda Beach in the South District. State Road 402 is a short road that is accessed from State Road 406 to the east of Titusville. Access to the New Smyrna Beach and Titusville Area is provided by north-south facilities including I-95 and U.S. 1. East-west access to New Smyrna Beach is provided by State Road 44 and to Titusville by State Roads 46, 50, and 528. Oak Hill, the gateway community to Seminole Rest, is accessed by U.S. 1. Seminole Rest is located on River Road at the eastern boundary of Oak Hill. A new I-95 interchange in the Oak Hill area is being studied that would provide more direct access to Seminole Rest.

While bicyclists like to ride along the North District beach access road, the 11-foot wide roadway does not have a bicycle lane and is not wide enough to safely accommodate bicycle and auto traffic. There is currently very little bicycle traffic along roads in the South District.

Beach access for disabled visitors is provided at both Apollo Beach and Playalinda Beach by available sand-accessible wheel chairs.

The North District has nine parking areas, containing about 286 spaces. During peak visitation periods, the parking lots are often filled. Five of the parking areas are along U.S. A1A, and four parking areas are along the bypass road that leads to the Eldora State House. New Smyrna Beach allows driving and parking on part of its beach. When parking is unavailable on the beach due to high tides, the beachgoers often move into the north area of the North District of the Park and use those parking facilities. Parking in the North District is frequently filled during peak season weekends before 10:00 a.m., with very little turnover until approximately 4:00 p.m.

The South District has approximately 1,300 spaces. Visitors fill the parking lot from north to south, but rarely fill all of the spaces available. Visitors that are unable to park in the North District rarely travel to the South District to use Playalinda Beach, as it is approximately a 60-mile drive between Apollo Beach and Playalinda Beach.

The Park management is considering the institution of a ferry service that would connect the Seminole Rest site on the mainland with the North District. Visitors would walk a short distance from the dock on the Mosquito Lagoon to the beach and be able to enjoy the beach without the need to have their cars on the island.

Parking at Seashore (North District)



A “swing bridge” is currently located on State Road 406 over the Intercoastal Waterway just to the east of Titusville. This bridge provides primary access from Titusville to the South District of the seashore. The existing bridge is not conducive to bicycle and pedestrian traffic. The Florida Department of Transportation is considering the replacement of this bridge, and the city of Titusville is working with the Department to ensure that the new facility safely accommodates bicyclists and pedestrians. The State Road 406 access is very important to Titusville and the Space Center as the Space Center is competing with a number of communities for a new space program called Venture Star that would be located in the Space Center near State Road 406. Improvement of this bridge would make the Space Center more competitive for the Venture Star program, as space vehicles would be launched on a runway similar to an airplane, and not require a conventional launch platform. As a result, many communities are competing for this program.

As mentioned previously, visitors are sometimes confused and mistakenly travel to the North District searching for the Kennedy Space Center. Visitors are also disappointed to learn that U.S. A1A is not continuous through the seashore, and they need to turn around and go west to U.S. 1 to continue their trip.

3.2 Community Development Conditions, Issues and Concerns

Canaveral NS is subject to the effects of new development in the gateway communities at its northern and western boundaries. Development along the beach to the south of New Smyrna Beach has extended to the seashore’s northern boundary. New Smyrna Beach is

annexing land along the beach to the south of their community toward Canaveral NS and is considering extending sewer service south to this area. They are also considering the extension of sewer service to the Park's visitor center.

The city of Titusville is a gateway community to the South District of the seashore and is the primary gateway to the island. The population and local economy of Titusville is closely linked with the activities of the Kennedy Space Center. The population of Titusville peaked in 1969 when activities at the Space Center were at their highest level, but decreased soon afterward when President Johnson moved many of the activities to Houston, Texas. During the early 1980s, the population in Titusville increased due to the Space Shuttle program, but the economy deteriorated in 1986 when the Shuttle program was stopped due to the Challenger disaster. Titusville received another setback in 1995 when Martin-Marietta closed down the Tomahawk project. The largest employers in the Titusville area are the United Space Alliance, Boeing Aircraft, NASA, and the Brevard County School Board. The city is hoping that the Venture Star program will boost the area economy if the Kennedy Space Center wins this program.

Commercial shellfishing is extremely important to the local economy. Recreational fishing and shrimping in Mosquito Lagoon help support a multimillion dollar tourist industry in the Titusville area.

Titusville is considering the construction of a joint visitor center for the wildlife refuge, the seashore, and the local area to promote the local attractions. Guides would be available to escort visitors through the refuge from the visitors center. The goal is to get visitors to leave their cars in Titusville and use mass transportation to access the refuge and the seashore. The city is also working with a developer to construct a conference facility with an associated 400 plus room hotel. This is anticipated for construction in the next one to two years. Currently, all of the hotels in the area are located near the Interstate system and are oriented to travelers passing through the area and not overnight visitors of the Titusville area. The city's effort to revitalize the downtown has included the creation of the Space Walk of Fame. The Space Walk of Fame is a park-like attraction with monuments to space program employees where visitors can learn about the history of the Space Center with a distant view of the launch pads at the Space Center. This project is being funded by past and present workers at the Space Center, and is partially constructed. All of this development that is being proposed is in a tax increment financing district near the historic area of Titusville. While the city has few problems with traffic congestion, there is some local concern over conflicts between autos traveling at high speeds on U.S. 1 through the historic district and pedestrians. The city would like the Florida Department of Transportation to narrow the street and widen the sidewalk in this area to slow down motorists.

The city of Titusville has no scheduled mass transit service, but does provide demand responsive transit services for elderly and handicapped residents.

Mercury 7 Monument at Space Walk of Fame in Titusville



The city is also interested in developing a Central Florida Trail System in conjunction with a trail system being developed by Orange County. This trail system would allow hikers and bicyclists to travel from the Orlando area to Titusville by means of a comprehensive trail system.

Oak Hill, located midway between New Smyrna Beach and Titusville, is a community with approximately 900 residents. While Oak Hill is the center of Volusia County's fishing industry, many of the residents commute to Daytona, New Smyrna Beach, or Titusville. Oak Hill is the home of the Boston Whaler boat manufacturing plant and is the gateway to Seminole Rest.

3.3 Natural or Cultural Resource Conditions, Issues and Concerns

Mosquito Lagoon, extending along the west side of Canaveral's barrier island, is the northernmost part of the Indian River lagoon. This 155-mile long lagoon contains the most diverse assemblage of aquatic species on the entire eastern seaboard and has been designated by the Environmental Protection agency as an Estuary of National Significance. Mosquito Lagoon has also been declared an Outstanding Florida Water by the state of Florida. It contains one of the last significant populations of oysters on the entire Atlantic coast. The estuary also acts as an important nursery area for a number of commercially significant ocean species such as flounder, mullet, black drum, and shrimp.

The Park is located along the "frost line," resulting in a unique combination of temperate and subtropical plants found nowhere else in the Western Hemisphere. This trait is exhibited in the seashore's hammocks, which contain an overstory dominated by temperate species and an understory comprised of subtropical plants. Another sign is the shift in

vegetation along the edge of the lagoon from salt marsh cordgrass (predominating in areas to the north) to mangrove species (which predominate to the south). There are approximately 1,070 species of native and introduced plants in the seashore and adjacent NWR. Canaveral also faces a serious threat from the invasion of exotic plants, including Brazilian Pepper, Australian Pine, and century plant.

The wildlife resources are extensive, ranging from a myriad of terrestrial and aquatic species inhabiting estuarine systems to small endemic populations of mammals living in the dunes. The seashore is second only to the Everglades National Park in the number of federally protected species, with 14. These include the West Indian manatee, right whale, the southeastern beach mouse, the southern bald eagle, and the Atlantic salt marsh snake. The 24 miles of undeveloped beach also attracts sea turtles that build 3,000 to 4,000 nests each year along the beach.

Canaveral NS also has a rich cultural heritage. There are 94 sites and 17 structures listed on Canaveral's Cultural Sites inventory. Listed sites include prehistoric middens and mounds dating back as far as 4,000 years, historic shipwrecks, a Civil War saltworks, two historic canals, and remnants of a turn of the century waterway community. Seven of these sites are listed on the National Register of Historic Places. Four of these sites are of statewide or regional significance (Turtle Mound, Old Haulover Canal, Cat Hammock, and Seminole Rest) and three are of local significance (Rose Hammock Midden, Rose Hammock Burial Ground, and the Confederate Saltworks). Seminole Rest, a large midden with associated smaller middens and two historic structures, was recently added to the Register. Located in Oak Hill, Florida, it may be the largest and least disturbed St. Johns I period site remaining on the east coast of Florida. A Development Concept Plan for Seminole Rest was recently completed. This plan states that Seminole Rest will be managed to protect and interpret its archaeological and historic resources. It will also become a visitor site within the Park. The Eldora Historic District, containing 18 historic and non-historic structures, was nominated for the National Register, but was rejected by recommendation of the Florida State Historic Preservation Officer, who suggested that the buildings be listed individually. The Eldora State House is open to the public and contains historic photographs, artifacts, and a slide show on the Eldora area. Canaveral management would like to utilize the Eldora State House as another visitor center.

Seminole Rest Area



While water quality in Mosquito Lagoon is good overall, septic tank effluent and storm-water runoff from adjacent communities are threatening to degrade the lagoon. The Park waters are closed to shellfishing after a heavy rain due to high fecal coliform levels. Shoreline erosion presents a constant threat to Canaveral's fragile barrier island. Hurricane Irene caused the seashore to lose about 30 feet of dunes during the summer of 1999. Boardwalks have been added to help absorb foot traffic impacts on the dune system.

The current level of visitation has overextended the Park's resources and has prompted the Park to increase resource management interpretive programs to help prevent further resource damage. Most of the resource damage is from human intrusion of the dunes, which has increased the damage caused by Hurricanes Floyd and Irene. The most severe dune damage has been to the north of Playalinda Parking Area 13, where approximately 1.5 miles of dunes have been impacted with "social trails."

3.4 Recreation Conditions, Issues and Concerns

Activities permitted at the seashore include swimming, fishing, boating, surfing, bicycling, hiking and seasonal waterfowl hunting. Horseback riding requires a permit and is only allowed from November 1 through April 30, due to nesting sea turtles. Limited backcountry camping is also permitted at the seashore from November 1 through April 30. There has been some resource damage to the vegetation around the campsites due to heavy use.

Short, self-guided hiking trails are available at several locations. The Turtle Mound Trail is located near Parking Area 1 in the northern district and offers a panoramic view of the ocean and Mosquito Lagoon, as well as shell middens left by the Timucuan Indians. The Castle Windy trail, near Parking Area 3, also contains shell middens. This trail was partially handicapped accessible via a boardwalk, but the boardwalk has been removed due to the need for extensive repairs. Eldora Hammock Trail, located near Parking Area 9, winds through densely vegetated hammocks. The Eldora Trail, near Parking Area 8, leads to a turn-of-the-century settlement along Mosquito Lagoon.

Canaveral NS management is considering the development of an area called Bill's Hill near Oak Hill. The 1,300-acre parcel is currently open to the public, but is undeveloped. Canaveral is considering providing trails for hiking, bicycles, and horses. The town of Oak Hill may become a partner in the development of this area.

Playalinda Beach has been unofficially designated as the beach area for the city of Titusville. In addition, the southern section of Klondike Beach has become popular with nude sunbathers who take advantage of the lack of federal laws regarding nude sunbathing, although there is a county ordinance prohibiting nudity. The nude sunbathers have created compatibility problems with families that gather at the northern section of Playalinda Beach, as well as limiting Incidental Business Permit (IBP) progress.

The South District of the seashore areas is closed for three days prior to launch activities at the Kennedy Space Center. The Park may also be closed when parking facilities are filled.

■ 4.0 Planning and Coordination

4.1 Unit Plans

The General Management Plan for the Canaveral National Seashore was developed in September 1981. A Resource Management Plan was recently prepared in September 1997. Canaveral has recently completed a Fire Management Plan in cooperation with the Merritt Island NWR.

Since Seminole Rest was added to the Park in 1989, the site has been closed to the public. In 1996, the NPS began a Development Concept Plan that will establish appropriate use and will design a suitable operation to protect and interpret the site's significant resources.

NASA will also be developing a Master Plan for all of its property, including the seashore. They will be considering the connectivity of the seashore, the NWR, and the Space Center as part of this plan.

4.2 Public and Agency Coordination

Canaveral has a cooperative agreement with East Volusia Mosquito Control District to treat approximately 4,000 acres of the Park with larvacides. The Florida Marine Patrol, Volusia County Sheriff's Department, and the Merritt Island NWR provide law enforcement on Canaveral property. Other agencies are involved in research including the NWR, University of Central Florida, University of Georgia, Department of Environmental Protection, Volusia County Environmental Management, East Volusia Mosquito Control District (EVMCD), St. Johns Water Management District, and the Halifax River Task Force.

NASA owns the property where the seashore is located. The seashore's relationship with NASA extends well beyond the landlord-tenant relationship. NASA provides back up law enforcement for the seashore, as well as back up emergency and administrative medical assistance. NASA also provides exhibit space at the Kennedy Space Center for the seashore, and also does hazardous material control and removal. In addition, NASA and the seashore work together on studies for threatened and endangered species, such as the Gopher Tortoise and the Scrub Jay.

The seashore enjoys a good relationship with the gateway communities of New Smyrna Beach and Titusville. The community of Oak Hill is considering a partnership with the seashore for the development of Bill's Hill.

■ 5.0 Assessment of Need

5.1 Magnitude of Need

Alternative transportation may have the potential to enhance the experience of visitors to the North District, as well as protecting the resources within the seashore. As parking appears to be the primary transportation-related problem associated with the seashore, opportunities to reduce the need to use private motor vehicles to access the Park could reduce impacts on the resources of the seashore. This could also enhance the visitor experience by providing an alternative mode of transportation to access the Park and ensure that the visitor will gain access to the facilities. As the seashore cannot accommodate a large number of additional visitors without resource damage, a land-based shuttle system is not recommended. In the South District, parking is not a problem, but the South District's location near the Merritt Island NWR and the city of Titusville may lend itself to participation in a shuttle system that would serve the city's proposed visitor center, the refuge, and the seashore's South District.

5.2 Feasible Alternatives

One feasible alternative would be to provide a ferry service that would operate across the Mosquito Lagoon between Seminole Rest and the barrier island. The ferry could be operated by an interpretive guide who would provide information about the lagoon and the features of the seashore during the trip. As the Mosquito Lagoon is an Outstanding Florida Water, the ferry should be powered by a low-emissions powerplant, such as an electric motor or, at a minimum, a four-cycle outboard. Parking would be located at the Seminole Rest site or nearby. An ITS sign would be located in New Smyrna Beach on A1A that would direct visitors to Seminole Rest. The sign would also inform visitors when parking is unavailable on the island and that access to the beach is by ferry only.

A shuttle system that provides service between the proposed visitor center for area attractions in Titusville, the refuge and the South District of the Canaveral NS. Parking would be available in Titusville near the visitor center and visitors would travel to the NWR visitor center and to the seashore. This alternative is contingent upon the construction of the Titusville visitor center and improvements to the NWR visitor center to accommodate additional visitors.

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■ 7.0 Persons Interviewed

Jim Cahill, District Ranger, Canaveral National Seashore

Norah Martinez, Chief Ranger, Canaveral National Seashore

Larry Mauk, Public Information Specialist, National Aeronautics and Space Administration

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